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Laurent, of Marseilles, who refers one to Unger's genus *Artocarpidium* and does not venture beyond *Phyllites* in the identification of the other.

While not absolutely unique, even if the age is as great as is assigned to them, since some of the leaves described by Fontaine from the Neocomian of Virginia may be dicotyledonous, the New Zealand examples are less ambiguous. It may be pointed out however that Lower Cretaceous and Neocomian are not synonymous terms, as one might infer the author to believe, and no evidence is presented which would indicate that these New Zealand deposits could not be Barremian, Aptian or even Albian in age, and in the last stage dicotyledons are fairly common in both America and Europe.

A table giving the distribution of the New Zealand species in other regions would have added much to the usefulness of the report.

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#### SPECIAL ARTICLES

##### THE FACTORS INFLUENCING THE ATTITUDE OF THE HEAD IN ANIMALS WITH INJURY TO ONE OTIC LABYRINTH

MAGENDIE, more than a century ago, recognized that the central nervous system participated in the maintenance of the attitudes of the body as well as in its movements. Recently Sherrington has called attention to this function under the head of the postural activity of muscle nerve. The attitude of the head is one of the characteristics of experimental removal of one otic labyrinth in animals, and the analysis of the factors involved becomes of importance from the point of view of the relation of the attitude of the head to the maintenance of the position of the body in space and hence, to the problem of the maintenance of equilibrium, as well as from its own intrinsic interest. This analysis was begun by Dr. A. L. Prince, of Yale,<sup>1</sup> in this laboratory more than two years ago, but his service in a base hospital of the American

Forces in France led to an interruption of the experiments. We desire to add a brief statement of new experiments at this time. We hope later to publish the data in full with Dr. Prince as the senior author.

The torsion of the head, always seen after removal of one otic labyrinth, with the occiput turned toward the injured side, largely disappears after removal of the homolateral cerebral motor cortex in dogs. The torsion reappears if the heterolateral cerebral motor area is removed some weeks or months after the ablation of the homolateral area.

The torsion of the head is greatly increased, and the rolling movement toward the side of the injured labyrinth, together with the ocular movements (ocular nystagmus) reappear, if the heterolateral cerebral motor cortex is removed some weeks after the time of the labyrinthine operation. Rolling movements of the animal to the side of the remaining cerebral motor area reappear, but no nystagmus, if one cerebral motor area is removed some weeks after bilateral labyrinthine operation.<sup>2</sup>

Our experiments have given a new interest to Magendie's statement that the division of the central nervous system into segments, *e. g.*, medulla oblongata, cerebellum and cerebrum, is an artificial division from the point of view of the physiologist, and that all parts must be considered together in arriving at an estimate of its functions. B. ARONOVITCH,

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#### A SLOW-SPEED KYMOGRAPH

PHYSIOLOGISTS and others using the "medium-spring" kymographs of the Harvard Apparatus Company, which are not provided with a slow-speed mechanism, may be interested in a simple device I have used for materially reducing the speed of the drum. It is shown in the appended figure. A small hole is drilled in the upper corner of the largest fan, and into it is tied a strong but flexible

<sup>1</sup> *Proceedings of the Society for Experimental Biology and Medicine*, 1916, XIII., p. 156.

<sup>2</sup> Unpublished experiments by Drs. Strauss and Friesner.

thread. To the other end of the thread is attached a lead ball a quarter inch in diameter. The length of thread and ball together is equal to the width of the fan. An L-shaped brass wire, with the short arm ending in a loop, is fastened to the top of the kymograph by the screw nearest the fan. The fan clears the vertical arm of the wire by a quarter inch. As the fan revolves, the lead weight swings outward and winds itself momentarily about the upright wire, bringing the fan to a brief halt at each revolution. The speed of the

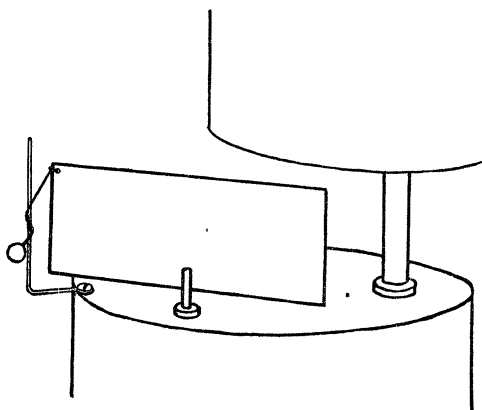


Fig. 1.

drum is thus reduced from one revolution in half an hour to one revolution in three hours and a half. Once properly adjusted the device works unfaillingly. EUGENE L. PORTER

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### THE AMERICAN MATHEMATICAL SOCIETY

THE one hundred and ninety-eighth regular meeting of the society was held at Columbia University on Saturday, April 27, extending through the usual morning and afternoon sessions. Thirty-three members were in attendance. Professor H. S. White presided at the morning session and Professor W. B. Fite at the afternoon session. The following new members were elected: Mr. Oscar S. Adams, U. S. Coast Survey; Professor William P. Parker, Union Christian College, Pyeng Yang, Corea; Dr. Eugene F. Simonds, University of Illinois. Seven applications for membership were received. Professor P. F. Smith was reelected a

member of the Editorial Committee of the *Transactions*. A committee was appointed to consider the question of the publication of the recent Chicago symposium.

The following papers were read at this meeting:

Arnold Emch: "On plane algebraic curves with a given system of foci."

J. F. Ritt: "On the iteration of polynomials."

F. F. Decker: "On the order of the system of equations arising from the vanishing of determinants of a given matrix."

O. E. Glenn: "Modular concomitant scales, with a fundamental system of formal covariants, modulo 3, of the binary quadratic."

J. E. Rowe: "The quinqueseccant line invariant of the rational sextic curve in space."

F. H. Safford: "Parametric equations of the path of a projectile when the air resistance varies as the  $n$ th power of the velocity."

C. L. E. Moore: "Surfaces of rotation in space of four dimensions."

C. L. E. Moore: "Translation surfaces in hyper-space."

Mary F. Curtis: "Note on the rectifiability of a space cubic."

F. R. Sharpe and Virgil Snyder: "Certain types of involutorial space transformations."

Caroline E. Seely: "On kernels of positive type."

J. W. Hopkins: "Some convergent developments associated with irregular boundary conditions."

J. R. Kline: "A necessary and sufficient condition that a closed connected point set that divides the plane into two domains be a simple curve."

Edward Kasner: "Equilong symmetries and a related group."

H. B. Phillips: "Functions of matrices."

G. H. Hallett, Jr.: "Linear order in three-dimensional euclidean and double elliptic spaces."

H. S. Vandiver: "On transformations of the Kummer criteria in connection with Fermat's last theorem."

H. S. Vandiver: "A property of cyclotomic integers and its relation to Fermat's last theorem."

H. S. Vandiver: "Proof of a property of the norm of a cyclotomic integer."

The San Francisco Section met at Stanford University on April 6 and the Chicago Section at the University of Chicago on April 12-13. The next meeting of the society will be the summer meeting, at Dartmouth College, early in September.

F. N. COLE,  
Secretary